United States Department of Agriculture **Forest Service** **Mark Twain National Forest**

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Subject: Review and Documentation of New Information Regarding the Indiana Bat (FSH 1909.15 Sec 18.1)

To: Regional Forester, R9

Enclosed below is information and documentation regarding the Federally endangered species Indiana bat located on the Mark Twain National Forest.

If you have questions regarding this information, please contact Forest Biologist Jody Eberly at (573) 341-7499.

/s/ Ronnie Raum
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Forest Supervisor

Enclosure

Mark Twain National Forest
Indiana Bat Updated Information

INTRODUCTION

On May 18, 2004, a contractor for the US Army Corps of Engineers captured two pregnant female Indiana bats in mist nets near Lake Wappapello, as part of a biological inventory of Corps lands. These two bats were fitted with radios and followed with telemetry equipment for the following six nights. Four roost trees were located by radio-tracking. Two of these are on Corps lands, one is on National Forest land, and the other is on the boundary between National Forest land and private land. All roost trees are within about 2.5 miles of the capture location.

On May 23, 2004, Forest Service personnel tracked one of the females to the roost tree on National Forest lands. On May 26, 2004, North Central Research personnel observed that tree starting just before dusk and saw 22 bats that flew from the tree to begin their nightly foraging. On May 27, 2004, North Central Research personnel observed this tree, as well as one of the roost trees on Corps land concurrently. At about 8:15 p.m., seven bats emerged from the tree. On June 2, 2004, biologists Megan York and Angie Trombley of the Poplar Bluff District observed the MTNF roost tree. At approximately 8:20 p.m., 30 bats emerged from the tree.

This information indicates that there is a maternity colony of the federally endangered Indiana bats using this area to bear and raise their young.

RELATIONSHIP OF NEW INFORMATION TO IMPACTS ALREADY ANALYZED

On June 29, 1999, the US Fish and Wildlife Service issued a programmatic non-jeopardy Biological Opinion (BO) on implementation of the Mark Twain National Forest Land and Resource Management Plan (Forest Plan). The BO includes an incidental take statement, including non-discretionary Reasonable and Prudent Measures, and associated Terms and Conditions (RPM/TC) to minimize the impacts of incidental take on Indiana bat.

RPM/TC that applies directly to maternity colonies, include:

- Initiate informal consultation with FWS upon discovery of a maternity colony.
- Protect the colony by establishing a zone (Area of Influence or AOI) centered on the maternity roost site and not to exceed ¾ mile radius circle unless a larger area is agreed to by FWS and FS based on the best science available.
- Develop a management recovery strategy for the AOI that includes,
  - ✓ retaining a minimum average of 24 potential roost trees per forested acre,
  - ✓ removing occupied roost trees that are determined to be safety hazards only following consultation with the FWS,
  - ✓ tree removal to benefit the species only during the season when roosting bats are absent and only when it has been determined that roosts are unoccupied, and,
  - ✓ maintaining 30-50% of mature oak-hickory and/or oak-pine forest with a canopy closure of 60-80%.

In March 2000, the Mark Twain National Forest amended the current Forest Plan to incorporate these RPM/TC as part of the plan. The decision to amend the Forest Plan was based on an environmental assessment that evaluated, among other things, the effects of designating AOI's around maternity colony sites on threatened and endangered species, recreation, lands adjustment, wildlife management, minerals program, special uses, timber management, local economies, and MTNF's compliance with the Endangered Species Act (ESA). The analysis shows that there would be minimal to minor effects on these resources, and that the Forest would be in compliance with the ESA by proceeding with the amendment. The decision was based on the best science available, using over 400 references, as well as personal consultation with species experts around the country. Since then, research on Indiana bats has continued to add to our store of knowledge, but has not brought to light any information that would change the decision made to incorporate the RPM/TC as written.

DETERMINATION OF THE IMPORTANCE OF NEW INFORMATION

After careful review of the information presented, I have determined that the Forest Plan analysis, including Amendment #25 to incorporate the BO, adequately considered the impacts associated with finding and protecting Indiana bat maternity colonies. No further analysis or supplementation of the Forest Plan EIS is required and implementation of the Forest Plan should continue. This information will be reviewed and evaluated during Forest Plan revision, which is currently in progress.

Informal consultation has been initiated. Delineation of the 3.5 Management Area (MA) for the maternity colony is being completed by a team consisting of the District Wildlife Biologist, the FWS biologist responsible for consultation, and other Mark Twain personnel. Development of the management recovery strategy within that 3.5 area will be completed and analyzed in a site-specific EA, and will include all the components required by the RPM/TC. A non-significant Forest Plan amendment to adjust the boundaries of the 4.14 MA to designate this new 3.5 MA will also be completed.

Because the finding of Indiana bat maternity colonies was anticipated and discussed, protection measures were identified in the programmatic BO, and because the mandatory RPM/TC are being carried out as prescribed in the BO, reinitiation of formal consultation with FWS is not necessary or required to address this new information.

ANALYSIS OF SITE-SPECIFIC DECISIONS IMPLEMENTING FOREST PLAN

On-going projects were reviewed to determine if there was a need to supplement the original analysis or reinitiate consultation with US Fish and Wildlife Service as a result of finding active maternity roost trees on MTNF. Each project area was reviewed to determine if: a) surveys for the Indiana bat had been done on that project area or on nearby project areas with similar environmental conditions, b) if the project area had habitat similar to that of the newly discovered colony, and c) what activities were remaining on the project areas.

For each site-specific project, a decision was made a) whether or not to supplement the NEPA analysis and b) whether or not to reinitiate consultation with US Fish and Wildlife Service.

Of 28 projects reviewed, nine (32%) have been surveyed. An additional nine (32%) have no activities that would be adverse to Indiana bats or their summer habitat; four (14%) are in habitats that are not similar to known maternity habitat, particularly the newly discovered colony; and five (18%) are composed of habitats similar in landscape position, composition and structure as nearby project areas that were surveyed two years consecutively without finding Indiana bats. One project (4%) is recommended for additional acoustic and/or mist-netting surveys because they are similar habitat to and/or are near the newly discovered colony area.

Projects with completed surveys for Indiana bats (9)

Over the past six years, summer mist-net and acoustic surveys for Indiana bats and other forest bats have been conducted on various project areas across the MTNF. These project areas were surveyed during the appropriate time, and using techniques that are accepted protocol for capturing Indiana bats. The researchers conducting the surveys were all well-qualified to capture and identify eastern forest bats, including Indiana bat. Mist-net sites were chosen according to accepted knowledge about Indiana and other forest bat movements and habitat use. Nets were set up primarily over ponds, water-filled road ruts, permanent stream corridors, or "woods road" corridors. Each of the following project areas was surveyed with no Indiana bats of either sex being captured.

Table 1 – Projects with completed surveys for Indiana bats – No Indiana bats captured

District	Project	Year(s) Survey Completed
ACW	Carman Springs	2002 & 2003
ACW	Rock Creek	2003
EP	Pineknot	2001 & 2002
HRCC	Middle River	2003
HRCC	Rams Horn	2002
HRCC	Crescent	2002
PF	Oak Health	2000 & 2001
PF	East Fredericktown	2004
Sal	Oak Health	2000& 2001

These project areas do not need to be re-surveyed since the surveys which were conducted followed accepted protocol and found no Indiana bats present. Survey findings for each project area were reviewed by US Fish and Wildlife Service as part of the informal and/or formal site-specific consultation for that project.

Each project analysis was done using site-specific completed survey information, as well as other best available scientific information. Consultation with US Fish and Wildlife Service was completed for each project prior to decision. Conditions on the project areas have not changed. Therefore, there is no need to supplement the individual NEPA analyses for these projects, nor to reinitiate consultation with US Fish and Wildlife Service.

Projects with habitat and landscape position similar to nearby or adjacent projects that were surveyed – No additional survey needed (5)

Some projects that were not surveyed during the summer for Indiana bats are composed of very similar habitats and landscape positions to other project areas that were surveyed two years in a row with no capture of Indiana bats.

Table 2 – Projects with nearby surveys and similar habitat

District	Project	Rationale for no additional surveys
ACW	Jones Ranch	Similar habitat as Carman Springs which was surveyed 2 years in a row with no Indiana bats captured
ACW	Topaz	Similar habitat as Carman Springs which was surveyed 2 years in a row with no Indiana bats captured
EP	Northeast Corner	Similar habitat as Pineknot which was surveyed 2 years in a row with no Indiana bats captured
EP	Pine-Bardley	Similar habitat as Pineknot which was surveyed 2 years in a row with no Indiana bats captured
PB	Carter Corner	Similar habitat as Cane Ridge which was surveyed 2003 with no Indiana bats captured.

Jones Ranch is composed primarily of upland oak-hickory and cedar/cedar-hardwoods. Topaz is primarily oak-hickory with some cedar and some pine along the eastern end of the project area. Carman Springs is primarily upland oak-pine, pine and oak-hickory with minor amounts of cedar/hardwood. All three areas have low to medium site indexes, with Jones Ranch having the lowest average of the three. Bull Creek and the East Fork, two small permanent streams border Jones Ranch on the west and east. Lake Taneycomo is the nearest large water body over 14 miles south of the project area. The North Fork River and Clifty Creek run through the Topaz Project area. Carman Springs has three small permanent streams running through it, and is about five miles from the North Fork River. In addition to surveys at Carman Springs, summer mist-netting and acoustic surveys were completed around Noblett Lake and small tributaries to the North Fork River in 2003 (about two miles east of Topaz). No Indiana bats were captured during those surveys. The programmatic Biological Opinion shows a netting and trapping site within the Topaz Project area boundary with no Indiana bats captured (BO page 59). Because habitat conditions and landscape positions are similar, the suitability of these project areas as habitat for Indiana bats would be similar to the Carman Springs Project Area, which was surveyed two consecutive summers with no capture of Indiana bats. Along with this and other surveys in and near these two project areas which captured no Indiana bats, the implication can be made that Indiana bats would not be found within the Jones Ranch or Topaz Project Areas.

Both Northeast Corner and Pine-Bardley are composed primarily of shortleaf pine and pine-oak forest, much the same as Pineknot. Northeast Corner is at least seven miles from a permanent stream or river (Current River to the northeast) and Pine-Bardley is over two miles west of the Current River. Pineknot is over five miles west of the Current River. Both projects are located in landscapes that are heavily forested, with some private ownership in openlands adjacent to the project areas. Pineknot is also in a primarily forested landscape matrix, with some private openlands to the north and south. Both have small pockets of high site index (probably on pine sites), but the majority of the project area is average site indexes, as is true for Pineknot. Because habitat conditions and landscape positions are very similar, the suitability of these project areas as habitat for Indiana bats would be very similar to the Pineknot Project Area, which was surveyed two consecutive summers with no capture of Indiana bats. The implication is that Indiana bats would not be found within the Northeast Corner or Pine-Bardley Project Areas. In addition, the BO shows a netting and trapping site on Missouri Department of Conservation lands about four miles northeast of Northeast Corner; and netting and trapping sites with no Indiana bat captures, and male Indiana bat captures about eight miles west of Pine-Bardley (BO page 59).

Carter Corner is primarily oak-pine and pine upland, as is Cane Ridge. Carter Corner has Cane Creek running through it, but it is about five miles from the nearest large permanent stream, the Black River. Most of Carter Corner and Cane Ridge are average site indexes with small, scattered locations with higher site indexes. Only 5% of Carter Corner is greater than 90 years old, but about half is between 70-80 years old. Because habitat conditions and landscape positions are very similar, the suitability of Carter Corner as habitat for Indiana bats would be very similar to the Cane Ridge Project Area, which was surveyed one summer with no capture of Indiana bats. Survey sites at Cane Ridge are about 1-5 miles from Carter Corner. The implication is that Indiana bats would not be found within the Carter Corner Project Area.

Since no Indiana bats were captured during one or two consecutive years of survey work in project areas that are similar in landscape position and available habitats, and other nearby surveys also found no Indiana bats, the likelihood of capturing Indiana bats in these similar habitats is very small. The likelihood of capturing reproductively active females and/or finding a maternity colony in these habitats is also very small. Therefore, no additional survey is recommended in these four project areas. In addition, because habitat conditions in these project areas have not changed since site-specific consultation on each project, there is no need to reinitiate consultation on these projects.

Projects where habitat is not similar to documented maternity habitats or habitat is not suitable for maternity colonies - No additional survey needed (4)

There are some project areas where there is no habitat within the project that is similar to documented maternity habitat at the newly discovered colony or other documented maternity colonies.

Habitat at the newly discovered maternity site is mature oak-pine (90 years old) on a northeast facing slope at elevation 600 feet above mean sea level. The basal area at the maternity tree site itself was lower than the average BA for the stand. In fact, the roost tree was located in a small canopy gap. While average diameter may be about 13", many trees in the stand were considerably larger than that. The stand appears to be a two-aged stand with large scattered overstory trees over a dense understory of saplings and ground vegetation. There are an abundance of large snags of oak and pine located in the roost tree stand and in adjacent stands. Along the Forest road leading to the tree, wildfires in 2002 killed some overstory trees which now provide snags of various sizes.

The recently discovered primary roost tree is located about 1.5 miles from the St. Francis River and about 1.25 miles from Big Lake Creek, both permanent streams. It is also less than 1 mile from some large bottomland fields along Big Lake Creek to the north and Brown Hollow to the west. (*NOTE: The other three roost trees that the two females were tracked to are less than 0.25 mile from Big Lake Creek.)* The roost tree stand was commercially thinned in 1992. The adjacent stand to the south was clearcut in 1980. Other stands within ¾ mile were clearcut in 1982, 1983, 1988, and 1990.

Without gathering additional data, and based on knowledge of the MTNF and this site, assessment of the unique features of the site that make it different from other MTNF stands are:

- Site index considerably higher than most on MTNF
- Surrounding area has considerably higher average site index than most MTNF
- Dominant trees are considerably larger on average than most MTNF stands
- Located within 1.5 miles of a large river and on a permanent stream running into that river

Table 3 – Projects with habitat not similar to maternity habitat – No survey needed

District	Project	Differences from maternity habitat
ACW	Jim Bald/Guthrie	Low site indexes; Open glades with few large trees or snags; Relatively small trees at glade edges; 3 miles from permanent stream; 10 miles from large river/lake
ACW	Brushy Creek & Clayton Ridge	Low site indexes; Open glades with few large trees or snags; Relatively small trees at glade edges; >8 miles from large river/lake
EP	Saltpetre	Average site indexes, Average tree diameters not unusually large; About 3.5 miles from permanent running water
Sal	Ameren UE line maintenance	Open grass/shrub land; Varying site indexes; No large dominant trees/snags

Projects where activities would result in no adverse effect to Indiana bats (9)

Several project areas have a variety of vegetation management activities included in the decision. Many of these activities have already been completed. The only remaining

activities to implement are those that will not affect large snags or mature forest. Other projects included in this category are those where the project activities do not include removal of large snags, or there are provisions in place to protect large snags, or they are prescribed burns that occur outside of the maternity season. Some projects affect very small areas. Therefore, the activities remaining to be implemented have no potential to adversely affect Indiana bats or their summer habitat.

Table 4 – Projects with no activities adverse to Indiana bats

District	Project	Rationale
ACW	Pine fuel reduction	Large snags will not be removed during project activity
HRCC	Kaintuck	Rx burn takes place outside of maternity season
PB	Pine fuel reduction	Large snags will not be removed during project activity
PB	Miller Creek North	Rx burn takes place outside of maternity season
PB	Tornado salvage	Large snags will not be removed during remaining project activity
PF	Tornado Salvage	Large snags will not be removed during remaining project activity & Rx burns take place outside of maternity season
Sal	Pine fuel reduction	Large snags will not be removed during project activity
Sal	Doe Run Prospecting	Small area affected & snag protection required
Sal	Doe Run leases	Small area affected & snag protection required

Projects where additional surveys are indicated (1)

There is one project located in relatively close proximity to the newly discovered colony, and include habitat that, at least superficially, appears similar to that of the newly discovered colony. In addition, this project has potential to remove large snags.

Table 5 – Projects where additional surveys are indicated

District	Project	Rationale
EP	Eastwood 2	Habitat appears similar to newly discovered maternity colony & project area located within 35 miles of new colony site. Recommend mist-net surveys within project area and nearby Current River bottomlands. If Indiana bats are found, review project for compliance with BO. If no Indiana bats are found, continue project implementation.

Eastwood 2 has been signed and is being implemented. Much of the project activity has been completed, including some commercial timber sales. However, there are still some activities occurring that have potential to remove large snags. Some locations within the project boundary are relatively high site indexes. It is relatively close to a large permanent river (Current River is within about 1.5 miles) and has some areas with relatively large/old trees. Some of the proposed activities may remove large snags. Mist net surveys within habitats similar to the newly discovered maternity colony should be done to determine if Indiana bats are using these project areas. If Indiana bats are discovered, the project should be reviewed for compliance with the BO and Forest Plan. If no Indiana bats are discovered, project implementation can continue.

Prepared by: /s/ Jody Eberly June 25, 2004
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Approved by: /s/ Ronnie Raum June 25, 2004
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